constitutional taint in any form, that none of them were old or otherwise broken down, and that but three of them were at all debilitated at the time of injury.

With regard to the results, it should be stated that of the thirteen cases (this enumeration of course embraces the one kicked by a horse), one suffered amputation of the thigh, five died, and seven made more or less complete recoveries. This certainly exhibits a high rate of mortality, and serves well to illustrate the serious character of the lesion.

It has been stated incidentally that the pathological conditions of the bone produced by contusion are apt to be masked by the swollen and inflamed state of the overlying soft parts, so that the osseous lesion may escape notice for some time. This happened in no less than three of our cases, and it should serve as a warning to all surgeons to be vigilant while treating this class of cases.

The facts and observations set forth in the preceding pages have shown at least some of the serious consequences which are produced by contusion of bone. It could scarcely be expected that all of them would be successfully pointed out by any one surgeon, however extensive his experience in osseous pathology may be. But enough has been shown at least to indicate that any injury of bone in the nature of a bruise, however trivial it may appear to be at the time of infliction, may be followed by serious consequences, which it is the duty of the surgeon to anticipate and ward off if possible.

HEAD-QUARTERS ARMY OF THE POTOMAC, March 22d, 1865.

ART. II.—*Diphtheria, as it prevailed in Accomac County, Va., and its most Successful Mode of Treatment.* By EDWIN W. LE CATO, M. D.

EARLY in the autumn of 1863 the lower portion of Accomac County, Va., was visited by an epidemic entirely unlike anything that had previously prevailed, and consequently most of us were wholly unprepared to decide upon its character or how to treat it. In the beginning, a few of the profession believed it to be tonsillitis, others, putrid sore throat, ulcerated sore throat, &c.; and not a few cases occurred before the true character of the disease was fully understood. But the great fatality of the malady soon convinced those who were in doubt, that the disorder was widely different from the anginose affections prevalent in this part of the world. It is now admitted by all to be what it really is—diphtheria.

The popular belief that the disorder was eminently contagious caused for a while much consternation in the community, greatly abridging social

intercourse where the disease happened to be prevailing. In some cases the fear of it was so great that the friends were compelled to perform the last sad rite of interment.

Not having any statistics of the actual number of deaths caused by diphtheria since its advent among us, it is impossible to give the exact mortality it occasioned, but certainly not less than two hundred persons, mostly children, have perished by the disease.

The district of country over which the disease extended does not exceed an area of fifteen or twenty miles square; and within this small compass it has continued its ravages without any seeming disposition to overleap the boundaries. Its limitation to this area is certainly not because the hygienic conditions of the adjoining country are better, or due to atmospheric influences. Neither can the disorder be satisfactorily referred to any known local causes, such as occupation, habits, &c., for throughout the peninsula they are similar. It is true that in the most sickly localities, that is, in the necks of land formed by the numerous small streams which extend for two or three miles up in the interior, diphtheria has been most prevalent and fatal; but why the materies morbi, whatever it may be, should exist in one neck and not in another separated only by a small stream not exceeding more than one-fourth of a mile in breadth, is a question which in the present state of our knowledge no one can answer. The disease has been supposed to originate in noxious emanations from the decomposition of animal and vegetable matter, uncleanliness, want of proper aeration of the blood, and various other causes. No doubt these predispose and render persons and communities more liable when the disorder is already prevailing, as will any agent which can depress the vital forces of the system; but it cannot be consistently referred to such causes, I think, because they have existed from time immemorial, and formerly to a greater extent than at present, and yet have never before produced diphtheria.

Diphtheria is evidently a blood disease, the result of a deadly poison circulating in the blood, and consequently affecting the whole body, but expending its greatest power on the nervous system. The disease, however, has been regarded "not as a disease sui generis, but rather as many diseases alike only in being associated with the common characteristic formation." This view, I think, is rather untenable, for we are constantly meeting intercurrent affections in almost every disease. In enteric fever we encounter pneumonia and bronchitis; in variola and rubeola we have the same complications, and, in other cases, various admixture of diseases. I hardly think we would be justified in supposing these disorders to have no claim to distinction or separate consideration, because they are so frequently associated with each other.

Diphtheria is more likely to affect persons whose powers of resistance are naturally weak, or have become so by previous disease or debilitating influences; hence, perhaps, the greater liability of children and females.

And this may also in some degree account for its frequent attacks in the course of other disorders. But by far the largest number of cases as it prevails here are peculiar, and present the same uniform symptoms, which are sufficient to entitle it to consideration as an idiopathic affection. The odour which generally accompanies it; the small, frequent, thrilling pulse; the marked debility that quickly follows the attack, and the suddenness of all these symptoms, will oftentimes enable us, unless the case is very mild, to diagnose diphtheria before looking at the throat.

The disease, as it occurred here, presented two forms, both having the same origin, but differing in degree or intensity. For the sake of convenience, I may be permitted to designate them spurious or false diphtheria, and true diphtheria. In spurious diphtheria, the constitutional symptoms are generally slight—some acceleration and feebleness of the pulse, general malaise, slight muscular pains, some enlargement and moderate tenderness of the glands about the throat, and inflammation of the fauces were the most prominent symptoms. The tonsils were sometimes swollen, sometimes, on the contrary, their size was normal, but they generally present a dark red color. The uvula is very generally elongated, often clubbed, and œdematous. The digestive organs were not materially disturbed, though much less was taken into the stomach, owing to the pain induced by attempts to swallow even liquids. There is no exudation to be seen anywhere in the throat, and this is the distinguishing feature between the true and false. This form of the disease attacks adults principally, and is never fatal. It seems to be the result of an abortive action of the poison, the consequence of partial dilution, or the energetic resistance of the vital powers to its operation. The only thing peculiar about these cases was their obstinacy. They would run on for two or three weeks and longer without much change, under the ordinary remedies for angina; but, on the other hand, were speedily arrested when treated as diphtheria. These cases prevailing, as they do, at the same time and in the same family, and cured by similar treatment as true diphtheria, are doubtless caused by some modification of the same toxic agent. There is, however, no positive proof that this is so, and such an opinion can only be sustained by concomitant circumstances.

In true diphtheria the case is different. Here the attack almost invariably commences with a chill of considerable severity; sometimes, however, chilliness and heat alternate until fever is fully formed. The tongue is early covered with a white or yellowish-white fur, through which the enlarged papillæ can be seen giving it a somewhat peculiar appearance. The bowels were sometimes constipated, but usually there is a strong tendency to looseness, and cathartics were seldom needed after the beginning. The pulse was generally small, vibrating, and compressible, and ranged from 90 to 120 or 30. The throat was the principal source of complaint, and the pain in it was greatly increased by speaking or during the act of degluti-

tion. The submaxillary, parotid, and cervical glands in bad cases were very much enlarged and extremely tender to the touch. Debility was a marked feature in the disease, and the patient early experienced difficulty in locomotion. The countenance presented a rather sunken aspect, and the colour of the skin was of a slight dingy yellowish hue, which seemed characteristic. There were many mild cases, however, in which these symptoms are not so strongly marked. If the throat was at this time examined, large ashy deposits of false membrane could be seen on one or both tonsils, uvula, or velum palati, and, sometimes, covering the whole faucial region.

Earlier in the attack the exudation was more limited and was confined to a single small spot; but it spread with the greatest rapidity unless checked by appropriate remedies. The uvula was elongated, and very frequently completely covered by the exudation. In one case it extended so far down the pharynx that it gave the patient, an adult negress, the greatest amount of uneasiness by constantly exciting the muscles of deglutition. The exudation was generally confined to the throat, but sometimes extended to the Schneiderian membrane, and blocked up entirely the nasal passages. Not unfrequently it extended forward, and was deposited on the outer edge and under surface of the tongue. Occasionally, but much less frequently, it invaded the larynx and trachea, and then was extremely intractable and fatal. Happily this extension did not often take place. Blistered surfaces about the throat were apt to become covered with a sloughy looking exudation. A mishap of this kind occurred to a patient of mine, a little girl, aged six years, who had an extensive burn on the posterior surface of the body and extremities. The wound, though a severe one, was doing pretty well, until about four weeks after the accident, when she was suddenly seized with diphtheria; the wound immediately lost its healthy appearance, and in a short while became the seat of a yellow exudation similar to that in the throat. She became pulseless, and died within forty-eight hours. It would seem, then, that the exudation is not limited to mucous tissues or surfaces, but that it might be deposited on any denuded surface of the body.

The above symptoms are such as usually attend a tolerably severe case of the disorder as it prevails here. But they occur in every possible degree of severity, from the mildest to the most malignant, and point to a serious constitutional malady rather than a mere local one.

In regard to the treatment, much discrepancy of opinion for a while prevailed. The antiphlogistic plan, such as leeching, blistering, and calomel, with the local application to the throat of the solid stick of nitrate of silver, were tried until the great fatality of the disease demonstrated their utter futility.

These remedies were then dropped, and various gargles and poultices tried with but very little better success.

The remedies that have been most successful here, and upon which the greatest reliance is to be placed are: quiniæ sulph.; potass. chlor.; ferri tinct. mur.; and argent. nit. Their value may be estimated by the order of enumeration. These have again and again been brought to the notice of the profession; but as they seem unjustly falling into disrepute, I shall give, somewhat in detail, the method I have adopted, and which has been successful in about one hundred and fifty cases, failing in three only—one complicated with an extensive burn, and two others with pertussis. These were all cases of true diphtheria, and most of them severe.

In the first place, then, in the beginning of the disease, if there should be torpidity of the liver with constipation of the bowels, a purgative dose of calomel and rhubarb should be given. If, on the other hand, there is some looseness, the calomel should be combined with pulv. Doveri, and given to stimulate the alimentary secretions, and prepare the patient in some degree for what is to follow. Three or four hours after the administration of the above, a pill, containing from one to two or three grains of the sulphate of quinia, should be given (to adults), and alternated every two or three hours, according to the urgency of the symptoms, with the following mixture: ℞.—Potass. chlor. ʒij; ferri tinct. mur. ʒijss; aquæ ℥ij; a tablespoonful, diluted at the time of administration with an ounce or two of water, and this may be sweetened with white sugar to make it more palatable to children. For them, the dose must also be diminished in proportion to the age. These remedies must be given alternately, and must be continued day and night until some amelioration takes place in the symptoms. The quantity of quinia given in any case must be regulated by its effects on the brain. It should be given in as large doses as can be borne without causing too much cerebral disturbance, and be steadily continued until the membrane begins to be detached, and then at longer intervals or in diminished doses until the throat is clean, when it should be discontinued, and the mixture alone given until convalescence is pretty well established.

As a topical application to the throat there is nothing better than the nitrate of silver, which should be used in a solution of not more than six or eight grains to the ounce of water, and be applied twice daily by means of a camel's hair pencil or small mop, made by fringing linen, and attaching it firmly to a stick slightly curved at the extremity. This is a gentle lotion, and is just what is needed to stimulate the parts to healthy action. A cauterant is not indicated, and if applied, will often do injury, and the frequent use of nitrate of silver in stick cannot be too strongly condemned. Externally the volatile liniment is useful, and may be applied twice a day, and any degree of irritation can be kept up by a piece of flannel worn around the neck. The tincture of iodine is also a good counter-irritant, and should be preferred when the glands are much enlarged and indurated. Blisters are extremely pernicious, and should be entirely discarded from

practice. They greatly distress the patient, without in any way favourably affecting the disease; and they very frequently become gangrenous and unmanageable. The daily use of the warm bath is productive of much benefit, and should not be omitted. There is another therapeutic agent which must never be forgotten—pure air! Much harm has often been done by confining patients in close rooms, and excluding as much as possible the external air under the impression that cold will be taken. No greater mistake than this can be made. The patient should have free access to pure air, either by thorough ventilation or by changing from room to room, and airing well the vacated apartment against his return to it. The diet should be nutritious, consisting of fresh milk, rich soups, custards, and the like; and when the appetite is abolished, provided the stomach is retentive, small quantities of food must still be given at stated intervals, to sustain the patient and prevent the inevitable tendency to asthenia. It will often be necessary to resort to stimulants, such as brandy, or brandy and milk, for the same purpose. With these remedies early resorted to, very few cases proved fatal here. The treatment of diphtheria, to be successful, must be energetic from the very beginning. It will not do to give a little potass. chlor., and be content because the case is mild, and there seems to be no indication for other remedies. I know that the practice of resorting to these measures in mild cases, and in such as appear to be accompanied by some sthenic action, has been strongly condemned. We are told that it is time enough to give a remedy when the proper indication arises, that is, to wait for anæmia before we give iron, and for the debility before having recourse to quinia. This, in my humble judgment, is a great error—one that has often entailed upon the patient a long train of evils, and frequently cost him his life. The constant tendency of diphtheria is to asthenia, and life is either destroyed in this way or by an extension of the pseudo membrane to the larynx and trachea. By prompt, energetic action both these calamities may be averted. I have never seen this plan do harm, or in any way aggravate the symptoms however sthenic it might be, but, on the contrary, have invariably seen the pulse reduced in frequency, the countenance brighten, the local symptoms improve, and the extension of false membrane prevented by this course.

The sequelæ of diphtheria, as it prevailed here, consisted principally in paralysis of the vocal organs and slight functional disturbance of vision. This happened almost as often after mild cases as after the most malignant, and seemed to bear no direct ratio to the severity of the case. These symptoms generally come on during convalescence, or a week or two after the subsidence of the disease, and are, or were not of a very persistent or serious character, usually disappearing in a few weeks under the influence of tonics, and moderate exercise in the open air.

The above, I am aware, is an imperfect sketch of diphtheria. It is only intended as an account of it as it prevailed here. As before stated, it has

been my good fortune to have lost but few cases; this I attribute wholly to the early and persistent administration of supporting remedies in the manner already indicated. It may be said that the type of the epidemic was more mild and less malignant here than elsewhere. But this, I think, is sufficiently controverted by the number of deaths caused by the disease.

ART. III.—*On the Mountain or Continued Miasmatic Fever of Colorado Territory.* By F. RICE WAGGONER, M. D., A. A. Surgeon U. S. A.

IN calling the attention of the profession to this form of fever, I do not wish it to be regarded as a new disease, but as an old and well-known malady of an unusual type, and, so far as our knowledge extends, purely occidental, and indigenous to Colorado and the Rocky Mountains, extending to Montana northward, and the Pacific westward.

During a four years' residence, during which I was engaged partly in private and partly in military practice, I have treated a full score of well-marked cases, and, without claim to skill or originality, I may say that I have resorted to a plan of treatment more successful than that hitherto employed by the practitioners of this section.

Mountain fever is the scourge of our pioneer miners, and its attack is regarded as next to fatal, either from a misapprehension of its nature and a wrong application of therapeutics by the profession, or from the proper remedial agents not being pushed far enough to secure their specific effects.

CASE I. Mr. W., aged 45, by occupation a farmer (rancheman), low stature, muscular, bilious temperament, had been exposed to much inclement weather and wet in the irrigation of his lands. Was attacked Sept. 29, 1862, with headache, daily increasing in severity, followed by general lassitude, listlessness, indifference to all things and persons around him. On the fourth day (Oct. 2) he applied to me for advice. His tongue was coated with rather a light bilious fur; bowels constipated; want of appetite, with slight tenderness of the epigastrium; tension and heaviness of the stomach. In fact, up to this time all the premonitory cerebral symptoms had been periodical in their character, these being generally aggravated from 10 A. M. to 6 P. M., when they subsided more or less, and the patient rested comparatively well during a portion of the night. But each day brought aggravated symptoms, and at the time he came under my notice he was ready to succumb to the long and tedious fever. I ordered him the following: ℞.—Hydrarg. submur., radix rhei pulv., āā gr. x; podophyllin gr. ss. M. ft. chart. ij. To be taken at 6 and 7 P. M. During the night it operated quite freely. Slight diaphoresis ensued.

Oct. 3, 10 A. M. Tongue more thickly coated, fur darker brown; pulse 100, rather weak and compressible; skin dry, but not harsh; eyes sunk and watery; no appetite; much thirst; tenderness of epigastrium increased,